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NOTES ON SOME OTTAWA VIOLETS.

By JAMES M. MACOUN,

Assistant Naturalist, Geological Survey of Canada.

While "Manual" writers, the compilers of local lists and American botanists in general were satisfied to lump into one species—one variety in fact—the several forms of what for so many years had been known as *Viola cucullata*, or *V. palmata*, var. *cucullata*, Canadian botanists have for more than a quarter of century known that this "species", or "variety" included many species and made repeated attempts to induce the recognized "authorities" to at least differentiate a number of varieties. In this they were uniformly unsuccessful. Dr. T. J. W. Burgess made at London, Ont., a special study of the violets of the *cucullata* and *sagittata* groups, Dr. Jas. Fletcher at the same time studied the violets of this vicinity, and Prof. John Macoun thirty years ago noted on his herbarium sheets the characters upon which several of the new Canadian species are founded. Other Canadian botanists have done work on similar lines.

The trouble in Canada was, and is, that none of our libraries, public or private, contained all the necessary books, monographs and revisions. When Canadian botanists discovered what they thought to be a new species they had but one course to follow. The specimens must be sent to some botanist in the United States or Europe and his decision was final. New discoveries were almost without exception given the names of well-known species. There is but little doubt that in one or other of the herbaria of the older Canadian botanists most of the species recently described by Dr. Greene have been separated from *V. cucullata*.

However this may be, I have had no opportunity of examining these herbaria and whatever of value there may be in these notes is the result of my own work in the vicinity of Ottawa during the spring and summer of 1898. Realizing that without some rare works on violets to which I have not access, mistakes would certainly be made, I gladly availed myself of the willingness of my friend Dr. Edw. L. Greene to assist me in my work and sent him a full series of the specimens as they were collected. It was a great satisfaction to me to find that he entirely agreed with my separation of the local violets of the *cucullata* group into six species and his diagnosis of these from living material is in every respect satisfactory.

Mr. C. L. Poland, in a recent paper on Acaulescent Violets, says: "At the outset I wish to emphasize the importance of unremitting field-work and the absolute uselessness of herbarium material unless one is fortified by previous familiarity with the growing plant." With this I heartily agree. Pronounced as the characters are upon which the species described in this paper are separated, great difficulty might still be experienced in determining dried specimens of one gathering, especially flowering plants before the appearance of the apetalous flowers. The method pursued in collecting the series upon which the following new species were described is, I believe, the only one which will insure satisfactory results. The early flowers were collected in May, the stations at which they were collected were carefully marked and visited again ten days or two weeks later, and then two or three times in June and July. The result was that with the complete series before him a child could separate the species.

Though much has already been done, this group of violets requires further study and I can confidently prophesy that at least one additional species will be added to the Ottawa Flora.

The beautiful and accurate drawings made by my friend Mr. Theodor Holm constitute the most valuable part of this paper. His work has been so carefully done that no collector need in the future experience any difficulty in determining any

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of the five species here recorded as growing in the vicinity of Ottawa, and my only excuse for reprinting here the descriptions already published by Dr. Greene is that they and the figures of the plants described may be found under one cover.

VIOLA SEPTENTRIONALIS, Greene, *Pittonia*, vol. III. p. 334.

(Plate II, Fig. 3.)

Acaulescent, gregarious, low, 4 to 5 inches high at petaliferous flowering; herbage rather light green, the leaves and petioles sparsely clothed with stiff straight spreading hairs, these most numerous beneath and along the veins; leaves from reniform in the lowest to round-cordate, strongly cucullate when young, lightly and very regularly crenate, all obtuse; peduncles (about equalling the leaves) bibracteolate near the middle; sepals small for the size of the flower, with prominent truncate auricles, the whole margin finely and closely ciliate; corolla pale violet, rather large, 9 or 10 lines long and broad, all the petals broad, usually all obcordate, notched at the broad apex, the upper pair sometimes merely obtuse; the odd or lower one amply expanded and as long and as broad as the others, this and the pair next to it hairy at base (on the claw), and sparingly so on the blade; apetalous flowers aerial, but on very short slender and horizontal peduncles, their pods very short and nearly oval.

Rich soil in thickets and open woods, Billings's Bush, south-east of Billings's Bridge, Ottawa; in full petaliferous flower, 10th May, 1898, and in fruit from the apetalous flowers three weeks later. Distributed as Geol. Survey of Canada Herb. No. 18,561. Described from specimens collected at above locality but not rare in suitable situations elsewhere near Ottawa.

According to Dr. Greene its southern and eastern U. S. homologue is the plant called by him *V. obliqua*, *Pittonia*, vol. III, p. 142; "but it is also allied and by its foliage more nearly to *V. cuspidata* of the far-western lake and prairie regions, and is distinct enough from either by a redundancy of characters. If it has the hairiness of *V. cuspidata* it has quite another quality

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of herbage, aerial apetalous flowers and fruits, and large obcordate petals instead of deeply coloured and cuspidately acute ones."

VIOLA MACOUNII, Greene, *Pittonia*, vol. III, p. 335.

(Plate I, Fig. 1, a, b.)

Rather larger than the preceding ; early leaves subreniform-deltoid, 1 inch long, $1\frac{1}{2}$ inches broad, firm and rather fleshy, crenate, villous-hirsute beneath and on the upper part of the petiole, only sparsely hairy above, but the margin ciliate ; pedicels bibracteolate in the middle ; sepals broad, obtuse, ciliate, somewhat callous-tipped ; petals lavender-colour, very deciduous or almost caducous, all remarkably narrow and elongated, the two upper rather smaller than the others, the odd one the largest, all sparsely hairy over almost the whole inner face, the claws more or less distinctly ciliate ; peduncles of the late apetalous flowers slender, short, horizontal, buried under decaying leaves or twigs ; their pods distinctly trigonous, short and thick, as broad as long, dark with numerous purple blotches, the shortly and obtusely lanceolate sepals and their auricles ciliate.

On dry limestone shingle, growing among grasses in the shade of cedars. Very abundant at the foot of the ledge of rocks that runs from the north-east corner of Rideau Hall grounds to the Ottawa River at Governor's Bay. The type locality. Distributed under Herb. No. 18,746. Collected by Prof. John Macoun west of the Beaver Meadows, Hull, Que., Herb. No. 18,900. First collected at the type station in 1884 and labelled "form 3" of *V. cucullata*.

VIOLA VENUSTULA, Greene, *Pittonia*, vol. III, p. 335.

(Plate I, Fig. 2, c, d.)

Dwarf with light-green glabrous herbage ; leaves cordate-ovate and deltoid-ovate, acutish, rather sharply and serrately crenate, cucullate when young, the blade less than an inch long, the slender petioles 1 to 3 inches long ; earliest peduncles barely equalling the leaves, the later surpassing them ; corolla large for the plant, often $\frac{1}{2}$ inch or more in breadth, deep violet-blue ;

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petals broad, obtuse, the odd one well expanded, nearly equal-
ling the others, truncate or retuse, only the two laterals bearded
at base with clavellate white hairs; earliest apetalous flowers on
slender peduncles equalling the leaves, but all the later ones short
peduncled and almost or altogether subterranean; capsule very
short and thick, roundish-obovate.

Type specimens were collected in the wet meadow between
the Rockcliffe road and Governor's Bay, Ottawa. It grows on
tussocks with *V. blanda* and except in May cannot be found
unless the exact locality be known, grasses and other flowers
hiding the smaller plant from view. Distributed as No. 18,565.
Specimens of this species have been sent me from Charlottetown,
P.E.I., by Mr. L. W. Watson.

VIOLA CUCULLATA, Ait.

(Plate v.)

This is the commonest blue violet in the vicinity of Ottawa,
always growing on very wet ground, generally by rivulets and
small creeks. Dr. Greene's note on this species (Pittonia, vol. III,
pp. 143-4) includes all its important distinguishing characters
and is here reproduced in part.

This is a very glabrous plant, of tender and succulent herb-
age, decidedly cucullate leaves, light green in colour, flowers
very pale blue, the petals with a spot of darker violet just above
the white basal part or claw. The cleistogamous flowers are
borne on greatly elongated very slender peduncles which are
strictly erect, both the growing and full grown ovaries being a
half-foot or more above ground among the leaf-blades. The
capsules are very long and quite prismatic, *i.e.*, of equal thickness
from one end to the other, and distinctly though obtusely tri-
gonous.

VIOLA CUSPIDATA, Greene, Pittonia, vol. III, p. 314.

(Plate IV and Plate III, Fig. 5.)

Acaulescent, low, at time of petaliferous flowering 3 or 4
inches high; leaves round-cordate, cucullate, crenate-serrate,

veiny and rugose, short-hirsute as to the petioles and along the veins beneath, sometimes also on the upper face, and the margins ciliolate; sepals obtuse, ciliolate from the base to the middle; corolla about 8 lines long and 9 in breadth, deep blue, the paired petals broad-obovate, abruptly acutish, the odd one nearly equalling those next to it, of oblong-obovate outline, fully expanding; the apex almost truncate but cuspidately pointed in the middle.

Very abundant in woods and thickets along the bank of the Rideau River from Billings's Bridge to the C. P. Ry. bridge. Distributed from the herbarium of the Geological Survey as No. 18,770. Specimens of this species have also been received from Mr. J. M. Dickson, Hamilton, Ont.

VIOLA AFFINIS, Le Conte.

The specimens which are for the present doubtfully referred here were collected under over-hanging banks near the water's edge along the Rideau River above Billings's Bridge. The material collected was not sufficiently complete to allow of satisfactory determination of the species.

VIOLA POPULIFOLIA, Greene, Pittonia, vol. III, p. 337.

Plate III, Fig. 4.)

An acaulescent blue-flowered woodland violet akin to *V. cuspidata*, but smaller, the petioles of the early leaves densely villous-hirsute, the blade from broad-cordate in the very earliest and smallest to deltoid or deltoid-reniform in those accompanying the petaliferous flowers, notably broader than long, both surfaces but more conspicuously the lower, hirsute-pubescent, especially along the veins; corollas large, rather light blue, all the petals broad and obtuse, the odd one like the others but a little longer; sepals of the petaliferous flowers oblong, obtuse, hispidulous below especially the auricles; apetalous flowers of summer and autumn very short-peduncled and horizontal or partly buried, but the peduncles slender; sepals small, glabrous;

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podis triquetrous-ovoid, finely dotted, 4 to 5 lines long; late foliage nearly glabrous, but rather fleshy.

Collected by Mr. J. M. Dickson near Port Flamboro, Ont., May, 1898, and grown by Dr. Greene and the writer. The growing plants are very easily distinguished from *V. cuspidata* to which it is closely related. Included in this paper in order to complete the enumeration of the Ontario species as far as they are known.

Ottawa, Dec. 1898.



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Fig. 1. *VIOLA MACOUNII*.

(a.) Leaves and Fruit. (b.) Flower.

Fig. 2. *VIOLA VENUSTULA*.

(c.) Flower. (d.) Fruit.





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Fig 3. VIOLA SEPTENTRIONALIS.

Flower.

Fruit.

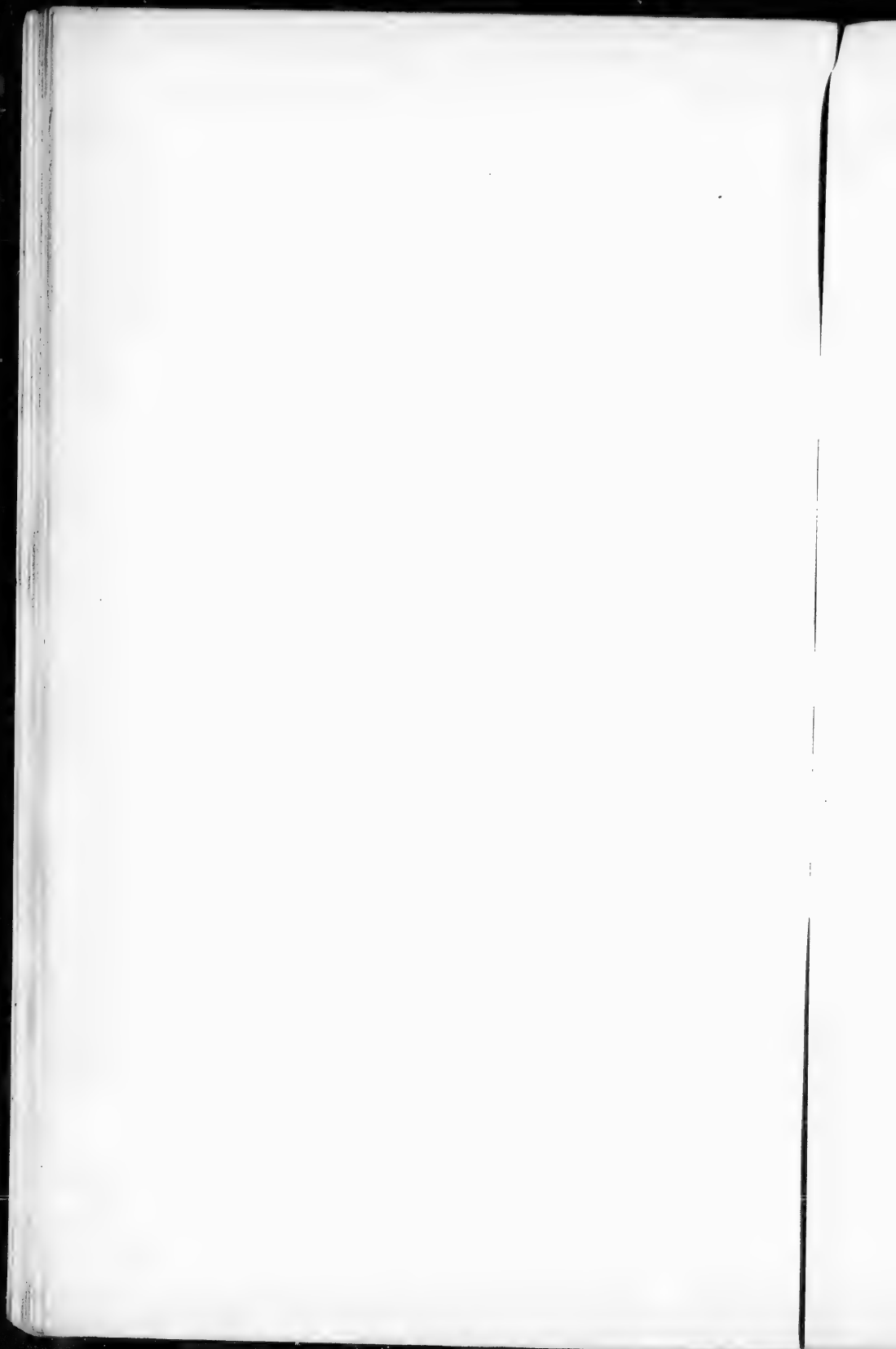
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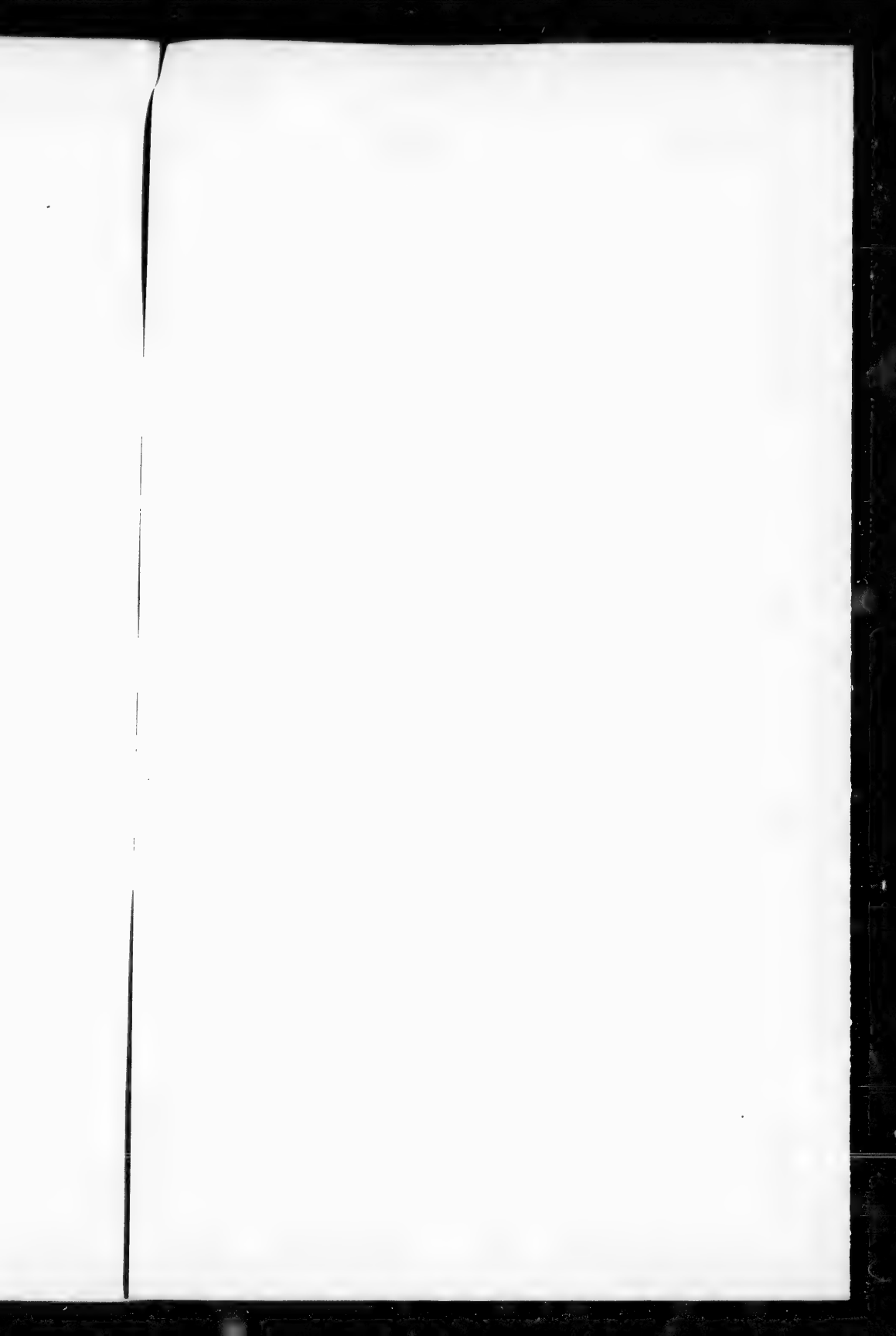
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Fig. 4. VIOLA POPULIFOLIA.
Fruit.

Fig. 5. VIOLA CUSPIDATA.
Flower.



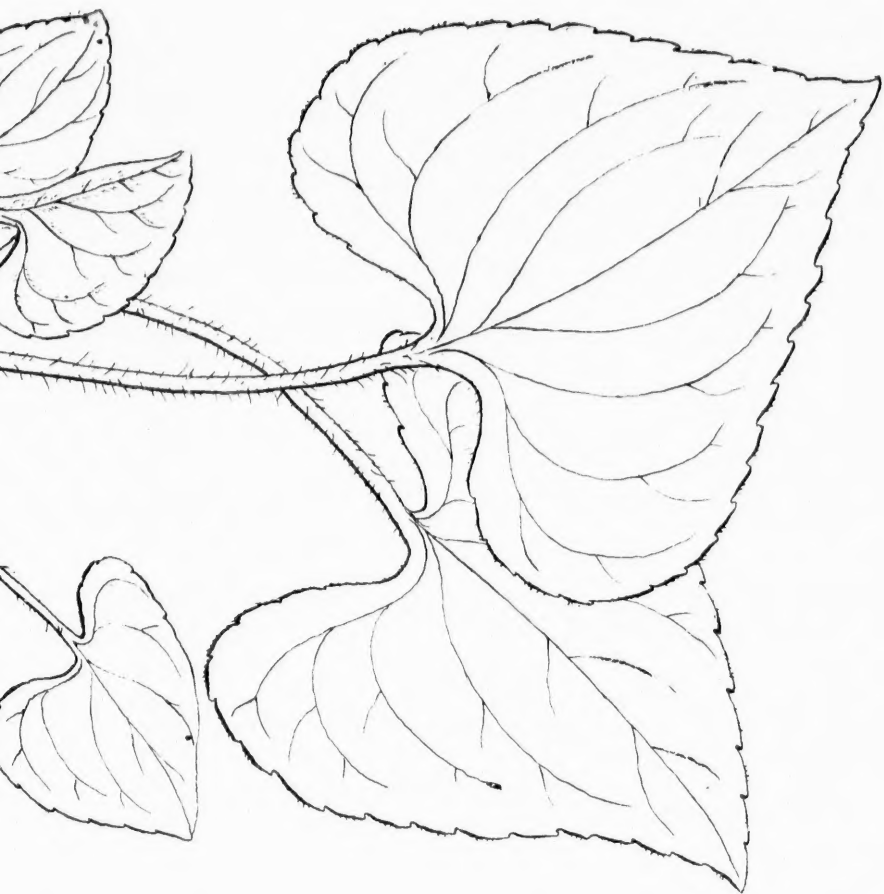


Christenhusia abrotanifolia



Fig. 6. VIOLA CUSPIDATA.

Fruit.



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VIOLA CUCULLATA.

Flower.

Fruit.